REMARKS

The comments of the applicant below are each preceded by related comments of the examiner (in small, bold type).

1. Claims 15, 26 are objected to because of the following informalities: Claim 15 depends from cancelled claim 14. Examiner will assume claim 15 depends from 13 for examination purposes. Claim 26 depends from cancelled claim 25. Examiner will assume claim 26 depends from 24 for examination purposes. Appropriate correction is required.

Claims 15 and 26 have been amended.

3. Claims 1-6, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Posner et al. US 4,807,280.

Regarding claims 1-6, 10 the claimed determining integer factors of N, in which represents the number of signals to be permuted is disclosed by N input lines and to construct a cross-connect switch, the largest prime factor of N, N_c, is determined and is number of input and output lines for center stage switch module. Furthermore, N/ N_c, is decomposed into its prime factors to determine number of stages. See column 5, lines 55-57, lines 66-68, column 6, lines 1-34. The claimed selecting a configuration for layers of a permuting network based on the integer factors of N and one or more preselected type of switches and constructing the permuting network in layers by using the one or more pre-selected types of switches based on selected configuration is disclosed by N input lines and to construct a cross-connect switch, the largest prime factor of N, N_c, is determined and is number of input and output lines for center stage switch module. Furthermore, N/N_c, is decomposed into its prime factors, f_i, to determine number of stages. If there are S prime factors, the cross-connect switch will have 2S+1 stages. The cross-connect switch will be symmetric about center stage switch module with f_i X f_i switch modules. See column 5, lines 55-57, lines 66-68, column 6, lines 1-34. Examiner interprets the pre-selected types of switches to be that a formula is predetermined for modules and according to N, a particular cross-connect switch will have to be construct according to these "pre-selected" formulas. Regarding claims 2-3, the claimed each of the types of switches is capable of selecting one signal from among a number of signals, the number being different for different types of switches and the claimed integer factors corresponds to number of signals that one type of switches can select from is disclosed by switches (Figure 3, element 101) in first stage select from two signals, switches in second stage (element 102) select from two signals, switches in third stage (element 103) selects from three signals, switches in fourth stage (element 104) select from 6 signals, and switches in fifth stage (element 105) select from three signals.
...

7. Claims 24, 26, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Posner et al. in view of Beshai US 6,853,635.

Posner et al. discloses all of the limitations except for computer-readable media for assigning D-dimensional coordinate to each set of N signals, in successive operations,

changing coordinates of N signals for particular dimension during each operation, such that after successive operations, the coordinates of N signals match a set of target coordinates. Beshai discloses N-dimensional lattice network with plurality of edge modules identified by N coordinates for addressing. Route-sets are computed for edge modules by permuting coordinates of edge modules. See column 2, 52-67, column 3, lines 1-42. At the time the invention was made, it would have been obvious to implement steps of coordinate permutation of Beshai into program code for use by Posner et al. One of ordinary skill in the art would be motivated to do so for efficiency of automated system.

Neither Posner nor Beshai discloses or suggests assigning multi-dimensional coordinates to the switches, each switch having a coordinate that is the same as another switch in the next layer, as recited in amended claim 1.

For example, as shown in FIG. 6 of the applicant's specification, each layer has a switch having the coordinate [1,1,1]. The positions of switches having particular coordinates are different for different layers, but each switch has a coordinate that is the same as another switch in the next layer.

Beshai discloses a multi-dimensional lattice network in which a plurality of edge modules have unique identities that are identified by N coordinates. (col. 5, lines 56-60) As shown in FIG. 7 of Beshai, each of the edge modules has a unique coordinate that ranges from (0,0,0) to (Q_1-1, Q_2-1, Q_3-1). Beshai does not disclose or suggest assigning coordinates such that each switch has a coordinate that is the same as another switch in the next layer.

Claims 6, 11, 24, and 28 are patentable for at least similar reasons as claim 1.

Regarding claims 11, 13, 18-19, 22-23, 28, the claimed N input and output terminals, N being an integer, N= wlxw2x ... xwD, the claimed permuting network that connects input terminals to output terminals constructed from layers of switches that include wl:1, w2:1, ... wD:1 switches is disclosed by N input and output lines and to construct a cross-connect switch, the largest prime factor of N, N_c, is determined and is number of input and output lines for center stage switch module. Furthermore, N/N_c, is decomposed into its prime factors to determine number of stages. See column 5, lines 55-57, lines 66-38, column 6, lines 1-34. If there are S prime factors, the cross-connect switch will have 2S+1 stages. The cross-connect switch will be symmetric about center stage switch module with f_i X f_i switch modules. See column 5, lines 55-57, lines 66-38, column 6, lines 1-34. Examiner interprets the pre-selected types of switches to be that a formula is predetermined for modules and according to N, a particular cross-connect switch will have to be construct according to these "pre-selected" formulas.

Posner et al. discloses all of the limitations of the claims except for each layer has N switches of same type. At the time it would have been obvious to modify Posner to have N switches in all 5 stages of cross connect matrix disclosed in Figure 3. One of ordinary

skill in the art would be motivated to do so to permute each input line in each switch of next stage.

Regarding claim 18, Poser does not disclose or suggest a first device pre-configured to generate *N* signals having a first ordering, a second device pre-configured to accept the *N* signals arranged in a second ordering; and a permuting network to receive the *N* signals having the first ordering and re-order the *N* signals so that the *N* signals have the second ordering acceptable by the second device, as recited in claim 18.

Poser discloses a permuting network, but does not disclose or suggest a first device configured to generate *N* signals having a first ordering, and a second device configured to accept the *N* signals arranged in a second ordering.

Larson discloses networks that establish connections from requestors to responders by relaying requests through switches. Each switch routes the requests using the information contained in the requests that switch handles. (Abstract of Larson) If the examiner contends that the "requestors" and "responders" of Larson correspond to the "first device" and "second device" of claim 18, respectively, then Larson does not disclose or suggest that the requestors are pre-configured to generate N signals having a first ordering, and the responders are pre-configured to accept the N signals arranged in a second ordering.

All of the dependent claims are patentable for at least the reasons for which the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner. Any circumstance in which the applicant has made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims. Any circumstance in which the applicant has amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Please apply any charges or credits to deposit account 06-1050, reference 10559-635001.

Respectfully submitted,

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